

AMENDMENTS TO THE CLAIMS

1. (Currently amended) A method for transmitting a message between an asynchronous mobile communication system and ~~at least a~~ core network, the asynchronous mobile communication system having a mobile station and a radio network, the method comprising the steps of:

a) at the radio network, ~~discriminating an operating type of a core network(s) coupled thereto;~~

~~— b) at the radio network,~~ generating and transmitting a system information message having ~~core network operating type information and~~ information related to ~~the~~ at least one core network that is interconnected to the asynchronous mobile communication system, wherein the information includes core network operating type information indicative of an operating type of the at least one core network, a public land mobile network (PLMN) identity and a minimum protocol revision;

~~e) b)~~ at the mobile station, ~~discriminating the~~ identifying a number of operating types of the at least one core network(s) based on the system information message;

~~d) c)~~ at the mobile station, if it is determined from the number of operating types that there is only one core network is coupled interconnected to the asynchronous mobile communication system, operating a call control entity and a mobility management entity according to the identified operating type of the core network;

~~e) d)~~ at the mobile station, if it is determined that from the number of operating types that there are two or more core networks are coupled interconnected to the asynchronous mobile communication system, ~~at the mobile station,~~ selecting one of the two or more core networks ~~to~~

~~be communicated with,~~ based on the system information message[[:]] and a PLMN identity and a mobile protocol revision stored in the mobile station,

~~f)~~ operating a call control entity and a mobility management entity according to ~~an~~ the identified operating type of the selected core network[[:]], and

g) informing the radio network of information related to the selected core network, wherein the step of selecting includes comparing the PLMN identity and the minimum protocol revision in the system information message with the PLMN identity and the mobile protocol revision stored in the mobile station, respectively; and

~~h)-e)~~ communicating messages between the mobile station and the radio network, the messages having a different data format ~~according~~ adapted to the identified operating type of the core network.

2. (Currently amended) The method as recited in claim 1, wherein the step a) includes:

a1) receiving core network operating type information; and

a2) determining whether the at least one core network interconnected to the asynchronous mobile communication system is a synchronous core network, an asynchronous core network or both of the synchronous and the asynchronous core networks, based on the operating type of the at least one core network.

3. (Currently amended) The method as recited in claim 2, wherein the step a) ~~further~~ ~~b)~~ includes:

~~a3) b1)~~ if the at least one core network ~~coupled~~ is the asynchronous core network, setting the core network operating type information in the system information message as “0”;

~~a4) b2)~~ if the at least one core network ~~coupled~~ is the synchronous core network, setting the core network operating type information as “1”; and

~~a5) b3)~~ if the at least one core network is both of the asynchronous core network and the synchronous core network ~~are coupled to the mobile communication system~~, setting the core network operating type information as “0 & 1”.

4. (Currently amended) The method as recited in claim 1, wherein the step b) e) includes the steps of:

~~b1) e1)~~ receiving the system information message; and

~~b2) e2)~~ extracting the core network operating type information from the system information message. [[;]]

5. (Currently amended) The method as recited in claim 4, wherein the step d) e) includes the steps of:

~~d1) e1)~~ if the core network operating type information represents that two core networks are coupled thereto, extracting the information related to the at least one core network from the system information message;

~~d2) e2)~~ comparing the information related to the at least one core network with information stored in the mobile station and corresponding to the information related to the at least one core network; and

~~d3) e3)~~ selecting one core network to be coupled thereto based on a comparison result.

6. (Currently amended) The method as recited in claim 3, wherein the core network operating type information and the information related to the at least one core network are inserted into a master information block of the system information message block.

7. (Original) The method as recited in claim 5, wherein the system information message is transmitted to the mobile station through a broadcast channel (BCCH).

8. (Currently amended) The method as recited in claim[[']] 1, wherein, if the selected core network is of the synchronous operating type, the message includes new information elements related to the synchronous core network.

9-10. (Cancelled)

11. (Currently amended) The method as recited in claim 5, wherein, if the at least one core network interconnected ~~coupled~~ to the asynchronous mobile communication system is of the synchronous operating type, the information related to the at least one core network further includes ~~a public land mobile network (PLMN) identity~~, a protocol revision (P_REV), ~~a minimum protocol revision (MIN_P_REV)~~, a network identity (NID) and a system identity (SID).

12. (Currently amended) The method as recited in claim 11, wherein the step d2) ~~e2)~~ includes the steps of:

~~d21) e21)~~ if the extracted PLMN identity is equal to a PLMN identity of the mobile station and the extracted minimum protocol revision (MIN_P_REV) is larger than a mobile protocol revision (MOB_P_REV) of the mobile station, selecting the asynchronous core network;

~~d22) e22)~~ if the extracted PLMN identity is not equal to the PLMN identity of the mobile station and the extracted MIN_P_REV is equal to or smaller than the MOB_P_REV of the mobile station, selecting the synchronous core network; and

~~d23) e23)~~ if the extracted PLMN identity is equal to the PLMN identity of the mobile station and the extracted MIN_P_REV is equal to or smaller than the MOB_P_REV of the mobile station, selecting the synchronous core network by using a core network selection method.

13. (Currently amended) The method as recited in claim 12, wherein, if the at least one core network is neither the asynchronous core network nor the synchronous core network, going back to step b1).~~e1).~~

14. (Original) The method as recited in claim 12, wherein in the core network selection method, one core network is selected based on a number of transmission channels, a kind of systems and a kind of service provided by the mobile station, a transmission power of the mobile station and a frequency band occupied by the mobile station.

15-17 (Cancelled)

18. (Currently amended) A method for transmitting a message between an asynchronous mobile communication system and ~~at least~~ a core network, the mobile communication system having a mobile station and a radio network, the method comprising the steps of:

a) at the mobile station, ~~discriminating the identifying~~ operating types of the at least one core network~~(s)~~ based on a system information message received from the radio network, wherein the system information message having information related to the at least one core network that is interconnected to the asynchronous mobile communication system, the information including core network operating type information indicative of an operating type of the at least one core network, a public land mobile network (PLMN) identity, and a minimum protocol revision;

b) at the mobile station, if it is determined from the number of the identified operating types that there is only one core network is coupled-interconnected to the asynchronous mobile communication system, operating a call control entity and a mobility management entity according to the identified operating type of the core network;

c) at the mobile station, if it is determined from the number of the identified operating types that there are two or more core networks are coupled-interconnected to the asynchronous mobile communication system, ~~at the mobile station,~~ selecting one of the two or more core networks to be communicated with, based on the system information message and a PLMN identity and a mobile protocol revision stored in the mobile station,[[;]]

d) operating a call control entity and a mobility management entity according to ~~an~~ the identified operating type of the selected core network, and[[;]]

e) informing the radio network of information related to the selected core network, wherein the step of selecting includes comparing the PLMN identify and the minimum protocol revision in the system information message with the PLMN identify and the mobile protocol revision stored in the mobile station, respectively; and

d) ~~fr~~-communicating messages between the mobile station and the radio network, the messages having a ~~different~~ data format ~~according~~-adapted to the identified operating type of the core network.

19. (Currently amended) The method as recited in claim 18, wherein the step a) includes the steps of:

a1) receiving the system information message; and

a2) extracting the core network operating type information from the system information message.[:,]

20. (Currently amended) The method as recited in claim 19, wherein the step c) includes the steps of:

c1) if the core network operating type information represents that two core networks are coupled thereto, extracting the information related to the at least one core network from the system information message;

c2) comparing the information related to the at least one core network with information stored in the mobile station and corresponding to the information related to the at least one core network; and

c3) selecting one of the two or more core networks to be coupled thereto based on a comparison result.

21. (Currently amended) The method as recited in claim 19, wherein the core network operating type information and the information related to the at least one core network are inserted into a master information block of the system information message. ~~block.~~

22. (Original) The method as recited in claim 21, wherein the system information message is transmitted to the mobile station through a broadcast channel (BCCH).

23. (Original) The method as recited in claim 18, wherein, if the selected core network is of the synchronous operating type, the message includes new information elements related to the synchronous core network.

24-25 (Cancelled)

26. (Currently amended) The method as recited in claim 20, wherein, if the at least one core network that is interconnected ~~coupled~~ to the asynchronous mobile communication system is of the synchronous operating type, the information related to the at least one core network further includes ~~a public land mobile network (PLMN) identity,~~ a protocol revision (P_REV), ~~a minimum protocol revision (MIN_P_REV),~~ a network identity (NID) and a system identity (SID).

27. (Currently amended) The method as recited in claim 20, 21, wherein a first of the at least one core network is an asynchronous core network and a second of the at least one core network is a synchronous core network, and the step c2) e2) includes the steps of:

c21) e21) if the extracted PLMN identity is equal to a PLMN identity of the mobile station and the extracted minimum protocol revision (MIN_P_REV) is larger than a mobile protocol revision (MOB_P_REV) of the mobile station, selecting the asynchronous core network;

c22) e22) if the extracted PLMN identity is not equal to the PLMN identity of the mobile station and the extracted MIN_P_REV is equal to or smaller than the MOB_P_REV of the mobile station, selecting the synchronous core network; and

c23) e23) if the extracted PLMN identity is equal to the PLMN identity of the mobile station and the extracted MIN_P_REV is equal to or smaller than the MOB_P_REV of the mobile station, selecting the synchronous core network by using a core network selection method.

28. (Currently amended) The method as recited in claim 27, wherein, if the at least one core network is neither the asynchronous core network nor the synchronous core network, going back to step c1).

29. (Original) The method as recited in claim 27, wherein in the core network selection method, one core network is selected based on a number of transmission channels, a kind of systems and a kind of service provided by the mobile station, a transmission power of the mobile station and a frequency band occupied by the mobile station.